Tier I/II Designation and Screening Process

Purpose

The purpose of this guidance is to provide definitions of Tier I and Tier II sites within the context of MOAs covering State VCPs. The guidance also describes a process that can be used by any party, e.g., site owners, State Agencies, etc., to decide whether a site should be classified as Tier I or Tier II for the purpose of determining status under the MOA. The overall goal of this guidance is to assist users in reaching consistent decisions regarding Tier I/II designations.

Scope

EPA intends that this approach be used by states and/or private parties, including, for example, site owners, to assist them in making decisions regarding their status under a State VCP/MOA. EPA believes that in most instances private parties can use the following definitions and screening process to make accurate determinations on whether sites are Tier I or Tier II. Although the volunteering party may conduct the assessment on which the tiering decision is based, the State is ultimately responsible for tiering decisions. If the EPA subsequently determines that a site was improperly classified as "Tier II", the provisions of section III. D. "EPA CERCLA Actions" of the MOA/VCP guidance document will not apply.

The Agency anticipates that some of the sites addressed through voluntary cleanup programs may be included in EPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) inventory. EPA removes sites from CERCLIS after assessment and any necessary Superfund response and enforcement actions are completed. Approximately 75 percent of the sites addressed under the Federal Superfund program to date have been removed from the CERCLIS inventory. With respect to voluntary cleanup programs, EPA will continue to decide which sites are removed from CERCLIS based on the same criteria that are applied to sites not covered under these programs.

Background

The Federal Superfund program evaluates sites brought to the Agency's attention to identify those sites posing the most serious threats to human health and the environment. Generally, EPA employs a multi-phase evaluation process to identify which sites are among the highest priority for response, including whether they need removal actions, and to determine what response actions are appropriate. Results of the evaluations are used to determine whether involvement by the Federal Superfund program, e.g., remedial actions at National Priorities List (NPL) sites, performing time critical removal actions by the Federal Superfund program, etc., is warranted.

These evaluations, including identifying hazardous substances, exposure pathways, and receptors/targets, seek to identify sites that have caused, or are likely to cause, human exposure or contamination of sensitive environments. The definition of Tier I sites is directed towards

delineating these sites. Sites that do not meet these criteria, which the Agency expects to be the majority of sites brought to the Agency's attention, are defined as Tier II sites. Specifics of these definitions are addressed below.

Tier I Definition

The Federal Superfund Program will generally classify a *site* as Tier I if a *release* from that site has caused, or is likely to cause, *human exposure* to the release or contamination of a *sensitive environment*, and the *release* can be addressed under CERCLA authorities, and cleanup of the *release* has not been generally deferred to another Federal cleanup program. This includes, but is not limited to, sites where:

- *Drinking water supplies* have been, or are likely to become, contaminated with a *hazardous substance* (as defined in HRS); or
- Soils on or in close proximity to school, day care center, or residential properties have been contaminated by a *hazardous substance* three times above *background* levels; or
- Toxic substances that *bioaccumulate* have been discharged into *surface waters*; or
- Air *releases* of *hazardous substances* have been identified in a *populated area; or*
- *Sensitive environments* have been contaminated; or
- Releases would require immediate action from EPA (e.g., fire, explosions).

Note: Italicized terms are defined in the Tier I/II Screening Mechanism Definitions section at the end of this document..

Tier II Definition

Tier II sites are those that would be unlikely to warrant Federal remedial actions, i.e., those that do not meet the definition for Tier I sites. Tier II sites would also include sites that score below 28.5, based on the Hazard Ranking System (HRS), 55 FR 51532, and do not meet any of the characteristics of Tier I sites identified above. The majority of sites brought to the Agency's attention over the course of the Superfund program have scored below 28.5 and are considered Tier II.

Screening Process

The screening process below represents an approach to determine whether a site is Tier I or Tier II. The process consists of multiple steps in which each successive step involves more detailed information about a site and its environs. Information needed at each step is used to determine whether a site is Tier I, Tier II, or if further evaluation is necessary to make a Tier I/II decision. EPA's HRS model can be applied at any point in the process to assess a site. Those sites which score below 28.5 at any step in the process and do not meet any of the characteristics of Tier I sites identified above are defined as Tier II. The HRS model is backed by a substantial body of guidance available to assist users in making decisions consistent with those of EPA. On the other hand, if the reviewer identifies conditions consistent with any of the elements that make

up a Tier I site, no further investigation would be needed to classify the site as Tier I. Given that each step in the process builds upon information collected in previous stages, the process may be entered at any point based on the amount of knowledge and data available regarding site conditions and its environs.

The iterative nature of assessing sites by collecting more detailed information and reaching conclusions in successive evaluation stages is similar to both the public sector approach (e.g., preliminary assessment followed by a site inspection if warranted) and the private sector approach (e.g., phase I assessment based on ASTM Standard Practice E 1527, followed by a phase II if warranted and requested).

Tier I/II status reflects site conditions at the time the assessment data are collected and a decision is made. As such, a Tier I/II decision could become invalid, if site conditions change, new information is discovered, or site characteristics change (e.g., a new residential development is built on a site).

The five major step in making a Tier I/II determination include: 1) Exclusions; 2) Phase I; 3) Expanded Phase I; 4) Limited Sampling; and 5) Extensive Sampling. Each of these steps is described in detail below.

Exclusions

The first step in determining whether a site is Tier I or Tier II involves determining whether the site is eligible for cleanup under CERCLA authorities or if the site is being adequately addressed under another federal statute such as the Resource, Conservation and Recovery Act (RCRA). Sites that are ineligible for CERCLA response or are being addressed under another federal statute instead of CERCLA should receive a Tier II designation.

A. Statutory Restrictions

Some substances are excluded under CERCLA, and sites that contain only those substances are ineligible for CERCLA response actions. Similarly, Section 104(a)3 of CERCLA lists other limitations on CERCLA response. In general, a CERCLA response may be taken at a site if there is a release or threat of a release of a *hazardous substance*, pollutant or contaminant, or if the site poses an imminent or substantial danger to public health, welfare, or the environment).

Section 101(14) of CERCLA defines hazardous substances by referencing substances specifically listed under other Federal laws. A “hazardous substance” is any element, compound, mixture, solution or substance specifically designated as a “hazardous substance” or is regulated under the Resource Conservation and Recovery Act, the Clean Air Act, Clean Water Act, or Toxic Substances Control Act. Section 101(33) of CERCLA broadly defines the term “pollutant or contaminant” which could include any substance known or reasonably anticipated to be harmful to human health or ecological health. Because no substances are actually listed as

pollutants or contaminants in CERCLA, the Agency determines on a case-by-case basis which substances fall within the definition.

There are specific statutory exclusions that could cause a site to be ineligible for CERCLA response. For example, hazardous substances, as defined under CERCLA, specifically exclude petroleum and natural gas, and therefore CERCLA authority may not be used to respond to releases of these substances unless they are specifically listed or designated under CERCLA. The exclusion applies to petroleum, including crude oil or any fraction thereof (if the fraction is not specifically listed nor designated a hazardous substance by other listed federal acts), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel. Sites are excluded if they contain only excluded petroleum products. EPA expects that most releases from petroleum underground storage tanks (USTs) at gasoline filling stations, for example, would qualify for this exemption.

On the other hand, releases of petroleum products that are contaminated with hazardous substances (i.e., used oil/waste oil contaminated with metals or PCBs) may fall within CERCLA response authorities, if the hazardous substances cannot be separated from the petroleum, or if plumes of exempted substances are commingled with plumes of non-exempted substances.

In addition, section 101(22) of CERCLA excludes a limited category of radioactive materials from the statutory definition of "release," making a site ineligible for CERCLA response. The excluded categories of radioactive materials are:

1. Releases of source, by-product, or special nuclear material (not including source material) subject to section 170 of the Atomic energy Act[1]; and

2. Any release of source, by-product, or special nuclear material from any processing site specifically designated under the Uranium Mill Tailings Radiation Control Act of 1978.

Parties should consult with State and/or Federal contacts and consult appropriate case law to determine whether the site is excluded from CERCLA consideration due to statutory restrictions.

B. Other Federal Statutes

In addition to statutory restrictions, sites being adequately addressed under other federal statutes, such as RCRA, may also qualify for a Tier II designation, but refer to Section III. A.

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[1] Under this act, "source" means uranium or thorium, or any combination of the two, in any physical or chemical form, "by-product" means any radioactive material that was made radioactive by exposure to radiation from the process of using or producing special nuclear material, and "special nuclear material" is plutonium, uranium-233, enriched uranium-233 or -235, or any material that the NRC determines to be special nuclear material not including source material))

"Scope and Applicability" of the MOA/VCP guidance document to determine whether a specific site is eligible for inclusion under the MOA/VCP. RCRA is EPA's other central authority for cleaning up releases of hazardous substances, and has roughly parallel procedures to CERCLA in responding to releases of hazardous substances. The Agency has adopted a policy to use RCRA Subtitle C (hazardous waste) authority to respond to sites that can be addressed under RCRA Subtitle C corrective action authority (see 54 FR 41000, October 4, 1989).

Types of sites covered under the policy include hazardous waste treatment, storage and disposal facilities (TSDFs) that qualify under EPA's National Priorities List/RCRA deferral policy (see 51 FR 21057, 53 FR 23980, and 54 FR 41004). Parties should consult with State and Federal contacts to determine whether a site is being addressed under another federal statute, and therefore, whether a Tier II designation is appropriate. Again, parties must still refer to Section III. A. "Scope and Applicability" of the MOA/VCP guidance document to determine whether a specific site is eligible for inclusion under the MOA/VCP.

Parties should consult with State and/or Federal contacts and consult appropriate case law to answer the following questions:

Question 1A: Is the site eligible for response under CERCLA authorities?

If NO, the site should be classified as Tier II and no further work under this process is necessary;

If YES, refer to Question 1B:

Question 1B: Is the EPA or the State addressing the site under another federal statute instead of CERCLA?

If NO, proceed to the Phase I step (or other appropriate step depending on site information available);

If YES, the site should be classified as Tier II and no further work under this process is necessary.

Phase I

The Phase I step within this process is quite similar to the methods prescribed by ASTM Standard Practice E 1527, although it is limited to hazardous substances as defined under CERCLA. The primary purpose of the Phase I step is to gather readily available information about a site to identify the presence or likely presence of an existing or past release of a hazardous substance into the ground (i.e., soil), ground water, surface water, or air. This step determines whether there is evidence or an indication that hazardous substances, pollutants, or contaminants were ever handled or disposed at the site either currently or in the past.

The Phase I step in this process consists of a review of records and related environmental reports pertaining to the site and a site visit to observe site conditions. Types of information collected during this step include a general site description, current and past site use (e.g., nature and type of industrial use), topography, and waste characteristics, including an estimation of the type and quantity of hazardous substances at the site. Visual observations should consider stressed vegetation, discolored soils, oily ponds, and similar signs of contamination. No sampling is involved in this step. Geologic, hydrogeologic, and hydrologic data will prove useful along with topographic maps to determine whether migration of hazardous substances is likely. Data collected should help identify the potential distribution and mobility of hazardous substances in soil, ground water, surface water, and air.

Observations should also identify any site conditions warranting immediate or emergency actions. Examples of these include the threat of fire and/or explosion from unstable or reactive hazardous materials, the threat of direct contact with a hazardous substance, the threat of a continuing release of a hazardous substance, and the threat of contaminating surface waters or drinking water supplies.

The collection and review of readily available information at this step should be sufficient to answer the following question:

Question 2: Is it reasonable to expect that hazardous substances are present at the site?

If NO, the site should be classified as Tier II and no further work under this process is necessary;

If YES, proceed to the Expanded Phase I step (or other appropriate step depending on site information available).

Note: The site should be classified as Tier I if information indicates a release of a hazardous substance, pollutant, or contaminant has caused, or is likely to cause, human exposure or contamination of a sensitive environment, or if the site otherwise exhibits conditions such as those described under the Tier I definition above.

Expanded Phase I

If the Phase I indicates a reasonable expectation that hazardous substances are present at the site, the next step in this process involves gathering environs data to determine what could be impacted by a release from the site. Therefore, the purpose of the Expanded Phase I step is to identify and verify the existence and locations of nearby people (or pathways of human exposure, e.g., water intakes or wells) and sensitive environments that might be threatened by a release from the site.

Examples of data collected at this stage include nearby residential, worker, and student population estimates, nearby municipal, private, and other drinking water supplies, drinking water

wells and intakes, fisheries (including sport and subsistence fishing), and sensitive environments such as wetlands, national parks, wildlife refuges, and habitats of threatened or endangered species. This information is collected to determine whether a release of hazardous substances at the site could lead to human exposure or contamination of sensitive environments.

Data collected under the Expanded Phase I step should be sufficient to answer the following question:

Question 3: Could nearby populations or sensitive environments be at risk from the site?

If NO, the site should be classified as Tier II and no further work under this process is necessary;

If YES, proceed to the Limited Sampling step (or other appropriate step depending on site information available).

Note: The site should be classified as Tier I if information indicates a release of a hazardous substance, pollutant, or contaminant has caused, or is likely to cause, human exposure or contamination of a sensitive environment, or if the site otherwise exhibits conditions such as those described under the Tier I definition above.

Limited Sampling

If the Phase I investigation indicates a reasonable expectation that hazardous substances have been present at the site and the Expanded Phase I indicates that human populations or sensitive environments may be threatened by a release from the site, sampling should be conducted to confirm the presence of hazardous substances on the site. The purpose of the Limited Sampling step is to collect and analyze waste and environmental samples, using field screening and analytical techniques where appropriate, to determine the hazardous substances present at a site and whether they are being released to the environment.

The Limited Sampling step is not intended to be an exhaustive assessment of environmental conditions at a site. Rather investigators should obtain enough information to confirm whether hazardous substances are present. As in the Phase I step, investigations should identify site conditions posing immediate health or environmental threats which require emergency response.

Site sampling typically requires developing a work plan, along with sampling and health and safety plans. Sampling and analysis should comply with a screening level quality of data following adequate quality assurance and quality control (QA/QC) procedures (*40 CFR § 31.45*). The sampling plan should employ sound, scientific and professional judgment in identifying sampling locations.

The sampling data must be sufficient to answer the following question:

Question 4: Does site specific sampling confirm the presence of hazardous substances at the site?

If NO, the site should be classified as Tier II and no further work under this process is necessary;

If YES, proceed to the Extended Sampling step (or other appropriate step depending on site information available).

Note: The site should be classified as Tier I if information indicates a release of a hazardous substance, pollutant, or contaminant has caused, or is likely to cause, human exposure or contamination of a sensitive environment, or if the site otherwise exhibits conditions such as those described under the Tier I definition above.

Extensive Sampling

If the Limited Sampling step confirms the presence of hazardous substances at the site, more extensive sampling may be required to determine whether the site is Tier I or Tier II. The purpose of the Extensive Sampling step is to further evaluate the degree to which a site presents a threat to human health or welfare or the environment by collecting and analyzing waste and environmental media samples. This step is implemented to document releases and exposure/contamination on-site and off-site. Off-site sampling is needed to provide background samples, and where appropriate, identify human exposure or environmental contamination.

Background samples are needed to determine whether contamination at the site is at least three times higher than background levels. Sampling conducted under this step should comply with a definitive data level of QA/QC (*40 CFR § 31.45*). The detection limits used in the analysis of both the background and site-related contamination samples should be quantitatively consistent with sample quantitation limits as specified under the Superfund Contract Laboratory Program. Quantification of on-site and off-site threats should be sufficient to answer the following:

Question 5: Do on-site and off-site sampling data show exposure, or likely exposure, of nearby populations, and/or contamination, or likely contamination of sensitive environments at a minimum of three times above background levels or above EPA standard sample quantification limits?

If NO, the site should be classified as Tier II and no further work under this process is necessary;

If YES, the site should be classified as Tier I.

Note: The site should also be classified as Tier I if the site otherwise exhibits conditions such as those described under the Tier I definition above.

Request for Comments

The Agency is requesting comment on the criteria and screening process. EPA would like to receive comments on the screening mechanism, both how it works in general (for example, feasibility and ease of implementation), and specific suggestions for how the process could be improved. In particular, EPA would appreciate feedback and comment on the following questions:

1. What type and amount of information is needed each stage in the decision process to reach a Tier I or Tier II decision?

    1a. Would collecting the suggested information allow a party to move forward through the decision-making process efficiently and expeditiously?

    1b. What can be done with the process to guard against inaccurate assessments?

    1c. How well will this process work within established State programs?

2. Are the screening steps in the best logical sequence?

    2a. At what point it is useful to have information on exposure targets (i.e., nearby populations and sensitive environments).

    2b. Would it be more useful to have information about exposed/potentially exposed targets before or after limited sampling is performed?

    2c. When would information on target access to contamination be collected?

3. If there are nearby populations or sensitive environments, how could EPA ensure that private parties would evaluate them to account for changes in land use in the near or long-term?

4. What tools are currently available to the public that would allow them to collect the requested information?

    4a. How would these tools work to support a party's decision from a cost effectiveness and timeliness standpoint.

Tier I/II Screening Mechanism Definitions

The following definitions support terms identified in the Tier I, Tier II, and Process sections above:

Background: the level of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred. The background level should reflect the concentration of the hazardous substance in the medium of concern for the environmental setting on or near a site. Background level does not necessarily represent pre-release conditions, nor conditions in the absence of influence from the source(s) at the site. A background level may or may not be less than the detection limit (DL), but if it is greater than the DL, it should account for variability in local concentrations. A background level need not be established by chemical analysis. *Hazard Ranking System Guidance Manual, Interim Final, pp. 55 and 57.*

Bioaccumulation: the tendency of a hazardous substance to be taken up and accumulated in the tissue of aquatic organisms, either from water directly or through consumption of food containing the hazardous substance. *Hazard Ranking System Guidance Manual, Interim Final, p. 294; Rand, Gary M., and Sam R. Petrocelli, Fundamentals of Aquatic Toxicology, 1985, p. 652.*

Definitive Data: data that are documented as appropriate for rigorous uses that require both hazardous substance identification and concentration. Definitive data are often used to quantify the types and extent of releases of hazardous substances. *Guidance for Performing Site Inspections Under CERCLA, Interim Final, p. 99; Guidance for Data Useability in Site Assessment, Draft, pp. 13 and 14.*

Drinking Water Supply: any source of water (surface or ground) that is currently used or could be used to supply potable water. *Guidance for Performing Site Inspections Under CERCLA, Interim Final, p.118; Hazard Ranking System Guidance Manual, Interim Final, p. 116.*

Facility: any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, falling stock, or aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel. *CERCLA § 101(9).*

Ground Water: water in a saturated zone or stratum beneath the surface of land or water. *CERCLA § 101(12).*

Hazard Ranking System: scoring system used by EPA's Superfund program to assess the relative threat between sites associated with actual or potential releases of hazardous substances. It is a screening tool for determining whether a site is to be included on the National Priorities List. *Hazard Ranking System Guidance Manual, Interim Final, p.1.*

Hazardous Substance: CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA § 101(14) and 101(33), except where otherwise specifically noted in the HRS.*40 CFR § 300, Appendix A (Hazard Ranking System), Section 1.0.*

Human Exposure: any exposure of humans to a release of one or more hazardous substances via inhalation, ingestion, or dermal contact.*Amdur, Mary O., John Doull, and Curtis D. Klaassen, Toxicology, The Basic Science of Poisons, Fourth Edition, 1991, p. 14; Hazard Ranking System Guidance Manual, Interim Final, pp. 153, 259, 293, 317, 363, and 411.*

Nearby Populations: regularly present residents, workers, and students and sensitive environments located on or within 1 mile from the boundaries of a hazardous substance release.*40 CFR § 300, Appendix A (Hazard Ranking System),§ 5.2.*

Populated Area: any area occupied by a regularly present resident, student, or worker and/or sensitive environment. Populated areas do not include transient populations such as business patrons or travelers passing through the area. *Hazard Ranking System Guidance Manual, Interim Final, p. 412; 40 CFR § 300, Appendix A (Hazard Ranking System), § 3.3.2.*

Release: any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment (including the abandonment or discharging of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant). *CERCLA § 101(22).*

Screening Data: data that are appropriate for applications that only require determination of gross contamination areas and/or for site characterization decisions that do not require quantitative data. Screening data are often used to specify which areas to sample to collect definitive data. *Guidance for Performing Site Inspections Under CERCLA, Interim Final, pp. 99 and 100; Guidance for Data Useability in Site Assessment, Draft, p. 15.*

Sensitive Environments: consist of environmental receptors recognized in 40 CFR § 300, Appendix A (Hazard Ranking System), Table 4-23, Table 5-5, and wetlands as defined by 40 CFR § 230.3.

Site: area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include the area between sources *40 CFR § 300, Appendix A (Hazard Ranking System), Section 1.0*. The site is neither equal to nor confined by the boundaries of any specific property that may give the site its name. *60 FR 190, p. 51391*.

Surface Waters: water present at the earth's surface. Surface water includes rivers, lakes, oceans, ocean-like water bodies, wetlands, and coastal tidal waters, which include embayments, harbors, sounds, estuaries, back bays, lagoons, wetlands, etc. seaward from mouths of rivers and landward from the baseline of the Territorial Sea.*40 CFR § 300, Appendix A (Hazard Ranking System),§ 4.0.2.*

Wetlands: a type of sensitive environment defined in 40 CFR § 230.3 as "...those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands can be natural or man-made. Wetlands generally include swamps, marshes, bogs, and similar areas. Hazard Ranking System Guidance Manual, Interim Final, p. A-20.